

Panel design pack

1200 Oak Street — 3-bed ranch

Generated on	12/10/2026
Standard	NEC 2023
Strategy	Balanced
Enclosure	Load center · 30 spaces

17	8	2	7	15	30 %
CIRCUITS	OUTLETS	LIGHTING	DEDICATED	GFCI / AFCI	SPARE

No blocking issue detected

2 points to check listed at the end of this document, numbered and linked to the circuits concerned.

Panel directory (NEC 408.4)

21 of 30 spaces used · each breaker carries its own protection

1	DED01	Dishwasher circuit	20 A · 120 V · 12 AWG	Dual function breaker (GFCI + AFCI)
2–3	DED02	Dryer receptacle (240 V)	30 A · 240 V · 10 AWG	GFCI breaker
4–5	DED03	Electric water heater	30 A · 240 V · 10 AWG	GFCI breaker
6–7	DED04	EV wallbox — 7.4 kW	40 A · 240 V · 8 AWG	GFCI breaker
8	DED05	Microwave outlet	20 A · 120 V · 12 AWG	Dual function breaker (GFCI + AFCI)
9–10	DED06	Range / cooktop circuit (240 V)	40 A · 240 V · 8 AWG	GFCI breaker
11	DED07	Refrigerator receptacle	20 A · 120 V · 12 AWG	Dual function breaker (GFCI + AFCI)
12	BATH01	Hall bath and Primary bath	20 A · 120 V · 12 AWG	GFCI breaker
13	LAUN01	Laundry	20 A · 120 V · 12 AWG	Dual function breaker (GFCI + AFCI)
14	GAR01	Garage	20 A · 120 V · 12 AWG	GFCI breaker
15	GEN01	Living room, Primary bedroom and Hallway	20 A · 120 V · 12 AWG	AFCI breaker
16	GEN02	Outdoor	20 A · 120 V · 12 AWG	Standard breaker
17	GEN03	Bedroom 2 and Bedroom 3	20 A · 120 V · 12 AWG	AFCI breaker
18	SA01	Dining room and Kitchen	20 A · 120 V · 12 AWG	Dual function breaker (GFCI + AFCI)
19	SA02	Kitchen	20 A · 120 V · 12 AWG	Dual function breaker (GFCI + AFCI)
20	LTG01	Kitchen, Hall bath, Laundry, Primary bath and Dini...	15 A · 120 V · 14 AWG	AFCI breaker
21	LTG02	Garage	15 A · 120 V · 14 AWG	Standard breaker

Circuit schedule

By level · protection under the rating · loads are design guides, the NEC sets no maximum

REF.	DESCRIPTION / AREAS	EQUIPMENT	BREAKER	CABLE	LOAD	NOTES
First floor						17 circuits
LTG01 Lighting	Kitchen, Hall bath, Laundry, Primary bath and Dining room First floor · Kitchen, Hall bath, Laundry, Primary bath, Dining room	6 × Recessed spotlight, 2 × Waterproof light point, 2 × Ceiling light point	15 A	14 AWG 120 V · AFCI	10 / 12	
LTG02 Lighting	Garage First floor · Garage	2 × Ceiling light point	15 A	14 AWG 120 V · Standard	2 / 12	
BATH01 Outlets	Hall bath and Primary bath First floor · Hall bath, Primary bath	2 × Duplex receptacle	20 A	12 AWG 120 V · GFCI	130 / 800 ft²	
LAUN01 Outlets	Laundry First floor · Laundry	Washer receptacle, Duplex receptacle	20 A	12 AWG 120 V · DF	50 / 800 ft²	
GAR01 Outlets	Garage First floor · Garage	2 × Duplex receptacle	20 A	12 AWG 120 V · GFCI	420 / 800 ft²	
GEN01 Outlets	Living room, Primary bedroom and Hallway First floor · Living room, Primary bedroom, Hallway	11 × Duplex receptacle, 5 × Ceiling light point	20 A	12 AWG 120 V · AFCI	609 / 800 ft²	

REF.	DESCRIPTION / AREAS	EQUIPMENT	BREAKER	CABLE	LOAD	NOTES
First floor (continued)						17 circuits
GEN02 Outlets	Outdoor First floor · Outdoor	2 × Weatherproof outdoor receptacle, 2 × Outdoor wall light	20 A	12 AWG 120 V · Standard	269 / 800 ft²	
GEN03 Outlets	Bedroom 2 and Bedroom 3 First floor · Bedroom 2, Bedroom 3	6 × Duplex receptacle, 2 × Ceiling light point	20 A	12 AWG 120 V · AFCI	250 / 800 ft²	
SA01 Kitchen outlets	Dining room and Kitchen First floor · Dining room, Kitchen	3 × Duplex receptacle, 2 × Countertop receptacle	20 A	12 AWG 120 V · DF	8 / 12	
SA02 Kitchen outlets	Kitchen First floor · Kitchen	3 × Countertop receptacle	20 A	12 AWG 120 V · DF	3 / 12	
DED01 Dedicated	Dishwasher circuit First floor · Kitchen	Dishwasher circuit	20 A	12 AWG 120 V · DF	—	
DED02 Dedicated	Dryer receptacle (240 V) First floor · Laundry	Dryer receptacle (240 V)	30 A	10 AWG 240 V · GFCI	—	
DED03 Dedicated	Electric water heater First floor · Garage	Electric water heater	30 A	10 AWG 240 V · GFCI	—	
DED04 Dedicated	EV wallbox — 7.4 kW First floor · Garage	EV wallbox — 7.4 kW	40 A	8 AWG 240 V · GFCI	—	1, 2
DED05 Dedicated	Microwave outlet First floor · Kitchen	Microwave outlet	20 A	12 AWG 120 V · DF	—	
DED06 Dedicated	Range / cooktop circuit (240 V) First floor · Kitchen	Range / cooktop circuit (240 V)	40 A	8 AWG 240 V · GFCI	—	
DED07 Dedicated	Refrigerator receptacle First floor · Kitchen	Refrigerator receptacle	20 A	12 AWG 120 V · DF	—	

Points to check

0 blocking · 2 to check — numbers match the “Notes” column of the schedule

1	EV charger (NEC 2023): individual branch circuit with no other outlets (625.40), overcurrent protection of at least 125% of the charging current (625.41), GFCI on a charging receptacle (625.54). Permit and inspection as required by your local authority.	TO CHECK
	APPLIES TO • DED04 — EV wallbox — 7.4 kW : Garage ACTION Plan an individual circuit sized at 125% and check your local authority requirements.	
2	Pre-sized conductor section must be confirmed against route length, voltage drop, installation method and charger instructions.	TO CHECK
	APPLIES TO • DED04 — EV wallbox — 7.4 kW : Garage ACTION Confirm the section against actual length, voltage drop, installation method and manufacturer instructions.	